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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,434	11/03/2003	Kazuo Asanuma	117676	1518
25944	7590	11/04/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320				LAXTON, GARY L
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/698,434	ASANUMA ET AL.
	Examiner	Art Unit
	Gary L. Laxton	2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_ is/are allowed.  
 6) Claim(s) 2,7 and 8 is/are rejected.  
 7) Claim(s) 1 and 3-6 is/are objected to.  
 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 03 November 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 11/03/03.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Inventorship***

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***Specification***

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

3. Claims 1-8 are objected to because of the following informalities: definitions for the variables should not be in parentheses since they are part of the claim limitations. Furthermore, "S" is undefined in the claims. Appropriate correction is required.

4. The claims 1-8 are objected to because they include reference characters which are not enclosed within parentheses. [ i.e. transfer function (G) ].

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

Reference character “G” recited in the claims should be in parentheses (i.e. transfer function (G)).

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2, 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites “only a phase margin is selectively secured”. It is unclear what he applicant means by secured; rendering claim vague and indefinite. The limitation is given no patentable weight.

Claim 7 recites “an integral control element is applied”. This limitation is vague and indefinite since it does not indicate where the integral control element is applied or what it is applied to. Is it applied to the filter, controller, numerator, denominator, the output, the load, the

input, is it applied outside the circuit to another circuit or to the power supply apparatus? The limitation is given no patentable weight.

Claim 8 recites “the controller applies a differential control element”. This limitation is vague and indefinite since it does not indicate where the differential control element is applied or what it is applied to. Is it applied to the filter, controller, numerator, denominator, the output, the load, the input, is it applied outside the circuit to another circuit or to the power supply apparatus? The limitation is given no patentable weight.

### ***Allowable Subject Matter***

7. Claims 1-8 would be allowable if rewritten or amended to overcome the objections and rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claim 1; prior art fails to disclose or suggest, *inter alia*, a power supply apparatus having a transfer function of the controller where a root of a numerator thereof is a real number and a loop transfer function that includes the transfer function of the power converter circuit, an LC filter, a load, and a transfer function of a controller, and has an open loop characteristic that omits the gain margin.

Claim 2 is considered to contain allowable subject matter in regards to the transfer function of the controller having a root of a numerator thereof is a real number and a loop

transfer function that includes the transfer function of the power converter circuit, an LC filter, a load, and a transfer function of a controller, and has an open loop characteristic; however, the applicant needs to clarify the limitation concerning the limitation “only a phase margin is selectively secured” as noted above in the 112 2<sup>nd</sup> paragraph rejection.

Claims 3 and 4; prior art fails to disclose or suggest, inter alia, a power supply apparatus having a transfer function of the controller in which a root of a numerator thereof is a real number, and a loop transfer function including a transfer function of the power converter circuit, the LC filter, and the load, and the transfer function of the controller has an open loop characteristic that a gain exceeds 0 dB at a frequency at which a phase becomes -180 degrees.

Claims 5 and 6; prior art fails to disclose or suggest, inter alia, a power supply apparatus having a transfer function of the controller where a root of a numerator thereof is a real number, and a loop transfer function including a transfer function of the power converter circuit, the LC filter, and the load, and the transfer function of the controller has an open loop characteristic that a gain exceeds 0 dB at a frequency at which a phase is mostly delayed.

Claims 7 and 8 would be considered to contain allowable subject matter in regards to the power supply apparatus having a controller with a transfer function in which a root of a numerator thereof is a real number; however, the applicant needs to clarify the limitations “at frequencies higher than a resonance frequency of the LC filter, an integral control element is applied” as noted above in the 112 2<sup>nd</sup> paragraph rejection.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,760,633 Young discloses a method and apparatus for predicting stability of a closed loop apparatus; US 6,737,841 Wrathall discloses an amplifier circuit for adding a laplace transform zero in a linear circuit; US 5,013,998 Varga et al discloses a zero impedance converter.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L. Laxton whose telephone number is (571) 272-2079. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 10/29/04  
Gary L. Laxton  
Patent Examiner  
Art Unit 2838